

AMENDMENTS TO THE SPECIFICATION

Please amend the Abstract of the Specification as follows:

To achieve an encoding system including a highly efficient prediction performed in response to the content of a scene, a significance, and a motion characteristic of a moving picture and the like, ~~memories a, b, c~~ a reference memory, a motion compensator ~~5 responsive to an arbitrary transform~~ receiving a parameter representing the motion of a prediction picture segment for generating a predicted picture by using arbitrary data stored in the memories a, b, c ~~memory based upon the transform parameter, and memory update unit 15 for allowing the content that updates picture data in~~ of one or more of the memories to be updated at an arbitrary period of time, are provided memory and controls the capacity of the memory, are provided.

Please amend page 14, line 19 to page 22, line 8, as follows:

According to the present invention, a moving picture prediction system, for predicting a moving picture to be implemented in at least one of an ~~encoder and a decoder~~, ~~includes a plurality of memories for storing picture data for reference to be used for prediction, the plurality of memories being corresponding to different transform methods, respectively, and a prediction picture generation section for receiving a parameter representing a motion of a picture segment to be predicted, and for generating a predicted picture using the picture data stored in one of the plurality of memories used for the picture segment to be predicted based upon the parameter and one of the transform methods corresponding to the one of the plurality of memories.~~

~~— The encoder generates a prediction memory indication information signal indicating the one of the plurality of memories used for generating the predicted picture and transmits the prediction memory indication information signal and the parameter to a decoding station so as to generate the predicted picture using the picture data stored in the one of the plurality of memories based upon the one of the transform methods corresponding to the one of the plurality of memories in the decoding station.~~

~~— The decoder receives the parameter and a prediction memory indication information signal indicating the one of the plurality of memories used for generating the predicted picture from an encoding station, wherein the prediction picture generation section generates the predicted picture using the picture data stored in the one of the plurality of memories based upon the parameter and the one of the transform methods corresponding to the one of the plurality of memories.~~

~~— Further, according to the present invention, a moving picture prediction system, for predicting a moving picture to be implemented in at least one of an encoding and a decoding, includes a plurality of memories for storing picture data for reference to be used for prediction, the plurality of memories being assigned to different parameter effective value ranges, respectively, and a prediction picture generation section for receiving a parameter representing a motion of a picture segment to be predicted, for selecting one of the plurality of memories assigned to one of the parameter effective value ranges including a value of the parameter, and for generating a predicted picture using the picture data stored in a selected memory.~~

~~— Still further, according to the present invention, a moving picture prediction system, for predicting a moving picture to be implemented in at least one of an encoding and a decoding, includes a plurality of memories for storing picture data for reference to be used for prediction and a prediction picture generation section including a motion compensator for receiving a parameter representing a motion of a picture segment to be predicted, and for generating a predicted picture by using the picture data stored in the plurality of memories based upon the parameter, and a memory update unit for updating the picture data stored in at least one of the plurality of memories at an arbitrary timing.~~

~~— The moving picture prediction system predicts the moving picture in a moving picture sequence having first and second video objects, wherein the plurality of memories includes separate first and second pluralities of memories corresponding to the first and second video objects, respectively, and the prediction picture generation section includes separate first and second generators, respectively, corresponding to the first and second video objects, wherein the first generator uses the picture data stored in at least one of the first and second pluralities of memories to generate the predicted picture when predicting the first object, and generates~~

~~information indicating a use of the second plurality of memories for predicting the first object, the information being added to the predicted picture.~~

~~—— The prediction picture generation section generates the predicted picture through a change of either one of a number and a size of the plurality of memories in response to a change in the moving picture at each time instance.~~

~~—— The prediction picture generation section generates the predicted picture in a limited use of memories for prediction in response to a change in the moving picture at each time instance.~~

~~—— The prediction picture generation section generates the predicted picture by calculating a plurality of the predicted pictures generated by using the respective picture data stored in the plurality of memories.~~

~~—— The moving picture prediction system further includes a significance detector for detecting a feature parameter representing a significance of the picture segment to be predicted, wherein the prediction picture generation section generates the predicted picture by selecting at least one of choices of at least one of a plurality of prediction methods, the plurality of memories, and a plurality of memory update methods.~~

~~—— The moving picture prediction system further includes a significance detector for detecting a parameter representing at least one of an amount of bits available for coding the picture segment to be predicted, an amount of change of the picture segment at each time instance, and a significance of the picture segment, wherein the prediction picture generation section generates the predicted picture by selecting at least one of choices of at least one of a plurality of prediction methods, the plurality of memories, a plurality of memory update methods.~~

~~—— The moving picture prediction system predicts the moving picture on a video object basis, wherein the moving picture prediction system further includes a significance detector for detecting a parameter representing at least one of an amount of bits available for coding a video object to be predicted, an amount of change in the video object at each time instance, and a significance of the video object, wherein the prediction picture generation section generates the predicted picture by selecting at least one of choices of at least one of a plurality of prediction methods, the plurality of memories, and a plurality of memory update methods.~~

~~—— The moving picture prediction system further includes a prediction information encoder for encoding prediction relating information of the moving picture, wherein the prediction picture generation section counts times of a memory used for prediction and determines a rank of the plurality of memories based upon a counted number of the times, wherein the prediction information encoder allocates a code length to the prediction relating information to be encoded based upon the rank of a memory used for prediction.~~

~~—— The plurality of memories includes at least a frame memory for storing the picture data on a frame basis and a sprite memory for storing a sprite picture.~~

~~—— The sprite memory includes at least one of a dynamic sprite memory involving a regular updating, and a static sprite memory not involving the regular updating.~~

~~—— The one of the transform methods corresponding to the one of the plurality of memories is at least one of a parallel translation, an affine transformation, and a perspective transformation in an interchangeable manner.~~

~~—— Still further, according to the present invention, a method for predicting a moving picture to be implemented in at least one of an encoding or a decoding, includes the steps of storing picture data for reference to be used for prediction in a plurality of memories, corresponding different transform methods with the plurality of memories, respectively, receiving a parameter representing a motion of a picture segment to be predicted, and generating a predicted picture using the picture data stored in one of the plurality of memories used for predicting the picture segment based upon the parameter and one of the transform methods being corresponding to the one of the plurality of memories.~~

~~—— The method for predicting a moving picture further includes the steps of generating a prediction memory indication information signal indicating the one of the plurality of memories used for the picture segment to be predicted, and transmitting the prediction memory indication information signal and the parameter to a decoding station.~~

~~—— The method for predicting a moving picture is implemented in the decoding, and further includes the step of receiving a prediction memory indication information signal indicating the one of the plurality of memories used for generating the predicted picture and the parameter representing a motion of the picture segment to be predicted from an encoding station.~~

~~Still further, according to the present invention, a method, for predicting a moving picture to be implemented in at least one of an encoding and a decoding, includes the steps of storing picture data for reference to be used for prediction in a plurality of memories, assigning separate parameter effective value ranges to the plurality of memories, respectively, receiving a parameter representing a motion of a picture segment to be predicted, selecting one of the plurality of memories assigned to one of the parameter effective value ranges including a value of the parameter, and generating a predicted picture using the picture data stored in a selected memory.~~

~~Still further, according to the present invention, a method, for predicting a moving picture to be implemented in at least one of an encoding and a decoding, includes the steps of storing picture data for reference to be used for prediction in a plurality of memories, receiving a parameter representing a motion of a picture segment to be predicted, generating a predicted picture using the picture data stored in the plurality of memories based upon the parameter, and updating the picture data stored in at least one of the plurality of memories at an arbitrary timing.~~
encoding and a decoding, includes a plurality of memories that store picture data as a reference for prediction, the plurality of memories being allocated in a reference picture memory area.

Embodiments of such a system may also include a prediction picture generation section that comprises a motion compensator that receives a parameter representing a motion of a picture segment to be predicted, and generates a predicted picture by using the picture data stored in the plurality of memories based upon the parameter, and a memory update unit that updates the picture data stored in at least one of the plurality of memories in the reference picture memory area, and controls the capacity of the reference picture memory area.

Still further, according to the present invention, a method, for predicting a moving picture to be implemented in at least one of an encoder or decoder, may include the steps of receiving a parameter representing a motion of a picture segment to be predicted, generating a predicted picture by using the picture data stored in a plurality of memories based upon the parameter, the plurality of memories being allocated in a reference picture memory area, updating the picture data stored in at least one of the plurality of memories, and controlling the capacity of the reference picture memory area.

Still further, according to the present invention, a decoding apparatus, for decoding a moving picture with motion compensated prediction, may include a memory that stores picture data as a reference for prediction and a prediction picture generation section.

Embodiments of such a picture generation section may include a motion compensator that receives a parameter representing a motion of a picture segment to be predicted, and generates a predicted picture from the stored picture data based on the parameter, and a memory update unit that updates the picture data stored in the memory, and controls the capacity of the memory.